DECmate™ II

Word Processing
Using List Processing

digital

AA–N183A–TA

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AA–N183A–TA
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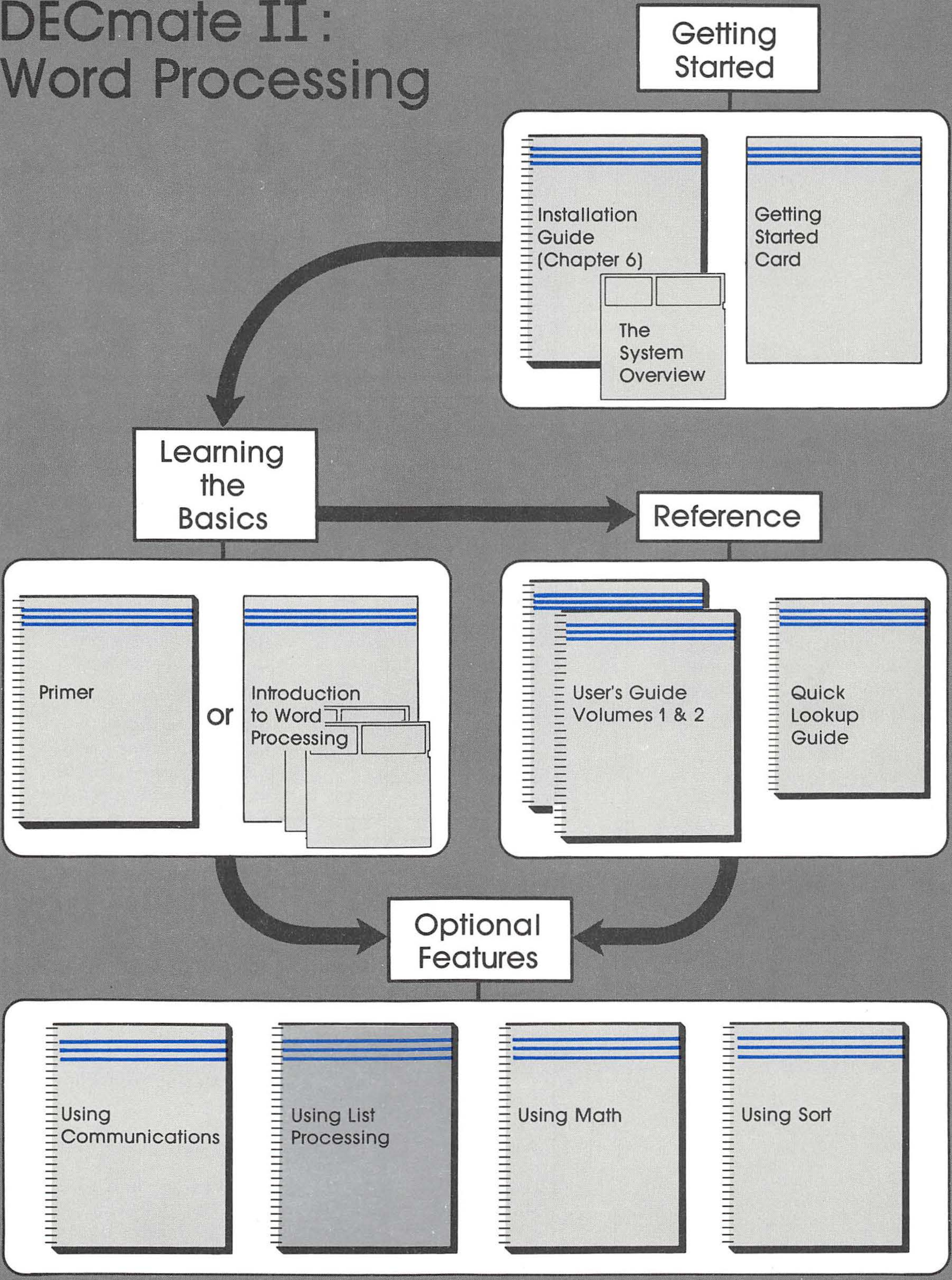
DECmate II: Word Processing



Getting Started

Installation Guide (Chapter 6)

The System Overview

Getting Started Card

Learning the Basics

Primer

or

Introduction to Word Processing

Reference

User's Guide Volumes 1 & 2

Quick Lookup Guide

Optional Features

Using Communications

Using List Processing

Using Math

Using Sort

See the reverse side for a description of each document and diskette.

DECmate II: Word Processing

Learning the Basics

Word Processing Primer

Teaches you word processing basics such as creating, editing, printing and copying documents using a quick, step-by-step format. This manual also tells you where to go next and what to do if you have problems with DECmate.

Introduction to Word Processing

Teaches you basic word processing: how to create, edit and print documents. This self-paced course contains two diskettes (Introduction to WPS–Drive 0 and Introduction to WPS–Drive 1) and a card to get started.

Getting Started

The System Overview

Teaches you how to identify the system parts, and handle diskettes. This self-paced course contains one diskette. Read Chapter 6, Using the System Overview Diskette, in the *DECmate II Installation Guide* (order number EK–DECM2–IN) to begin the course.

Getting Started Card

Teaches you how to turn ON your word processing system, activate features, initialize a document diskette, and back up the system diskette. It also tells you who and when to call for help.

Reference

User's Guide: Volumes 1 & 2

Explains DECmate II word processing procedures. Volume 1 contains basic word processing tasks: how to create, edit and print documents. Volume 2 contains advanced word processing tasks such as pagination, text manipulation, document searches and control commands.

Quick Lookup Guide

Summarizes basic word processing procedures. This guide is organized by tasks, such as creating or printing text. If you are an experienced user, read this guide to review basic word processing.

Note: *You should be familiar with basic word processing procedures before using the optional features.*

Optional Features

Using Communications

Teaches you how to use Communications. Communications lets you send information to and receive information from other computer systems.

Using List Processing

Teaches you how to use List Processing. List Processing lets you print the same document (such as a form letter) many times, varying certain information from copy to copy.

Using Math

Teaches you how to use Math. Math lets you do arithmetic while editing documents or using List Processing.

Using Sort

Teaches you how to use Sort. Sort lets you arrange lists of information in alphabetical or numerical order.

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Preface

PRODUCT NAME: DECmate II/WPS

VERSION: 1.0

List Processing operates with DECmate ™ II basic word processing software to merge units of information with repeated text to create individualized documents.

How to Use This Manual

You should know basic DECmate II word processing operations, but you do not need prior experience with List Processing.

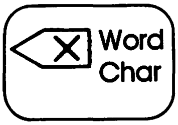
If You Are a New List Processing User

Chapters 1–4 contain the basics of List Processing, and show you how to create a mailing list and form letter, and how to merge the two. Chapter 5 provides details about how to create more specific applications for List Processing. Chapter 6 summarizes List Processing. The glossary contains List Processing terms.

If You Are an Experienced List Processing User

Read Chapter 2, Activating the List Processing Feature, to make sure List Processing is available on your diskette. Then read Chapter 6 for a summary and review of list processing. Try the exercises in Chapters 3 and 4.

Conventions

`Dot Matrix`	Text printed in dot matrix appears on the screen.
<field name>	Text inside angle brackets is a field name for List Processing, Sort, or Math.
Rubout key	The key marked with a symbol used to rub out functions. 
ALL CAPS	The function or editing key to press. For example: press ADVANCE.
Gold XXX	Press the Gold key and then a function key. For example: Gold MENU.
Type	Enter text into a document from the keyboard.
Press	Enter a command from the keyboard. For example: press DEL WORD.
<> key	The key in the lower right corner of the Editor keyboard, labeled <> on the top, also marked ENTER.

1

Overview

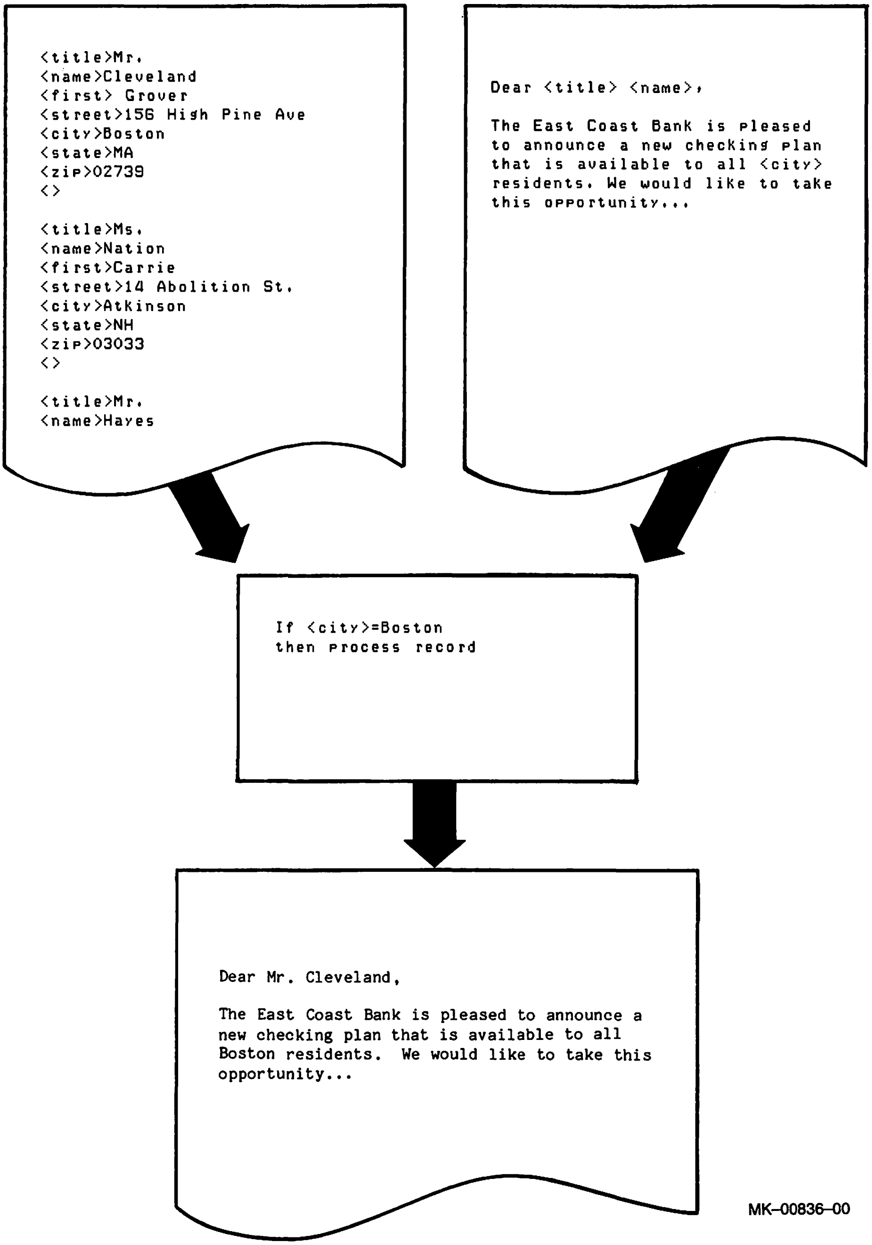
What Is List Processing?

List Processing is an optional *feature* that you can add to your DECmate word processing *software*. It lets you produce many form letters and other documents with a minimum of typing.

You can use List Processing to:

- Create personalized letters describing a new product or service.
- Select customers who owe money and produce letters asking them to pay.
- Produce a directory of customers.
- Produce a telephone directory for a company, a list of purchase orders, or any other type of list.
- Create a single form to produce a series of monthly reports.

Before using List Processing, you must create a *list document*, a *form document*, and a *selection specification document*. These documents are explained in the following section.



```
<title>Mr.
<name>Cleveland
<first> Grover
<street>156 High Pine Ave
<city>Boston
<state>MA
<zip>02739
<>

<title>Ms.
<name>Nation
<first>Carrie
<street>14 Abolition St.
<city>Atkinson
<state>NH
<zip>03033
<>

<title>Mr.
<name>Hayes
```

```
Dear <title> <name>,

The East Coast Bank is pleased
to announce a new checking plan
that is available to all <city>
residents. We would like to take
this opportunity...
```

```
If <city>=Boston
then process record
```

Dear Mr. Cleveland,

The East Coast Bank is pleased to announce a new checking plan that is available to all Boston residents. We would like to take this opportunity...

Figure 1 How List Processing Works

The List Document

The list document contains sets of related information. If you are producing letters, the list document might be a mailing list with names and addresses. Doing List Processing inserts the name and address of each person into the form document to produce the letters.

The Form Document

The form document is the text you want List Processing to print repeatedly. It is the model that each printed copy follows.

The Selection Specification

A third document, the *selection specification*, tells DECmate which *records* to select from the list document. You can send the letter to everyone on your list, or you can select specific people to send letters to.

Figure 1 illustrates how List Processing works.

2

Activating List Processing

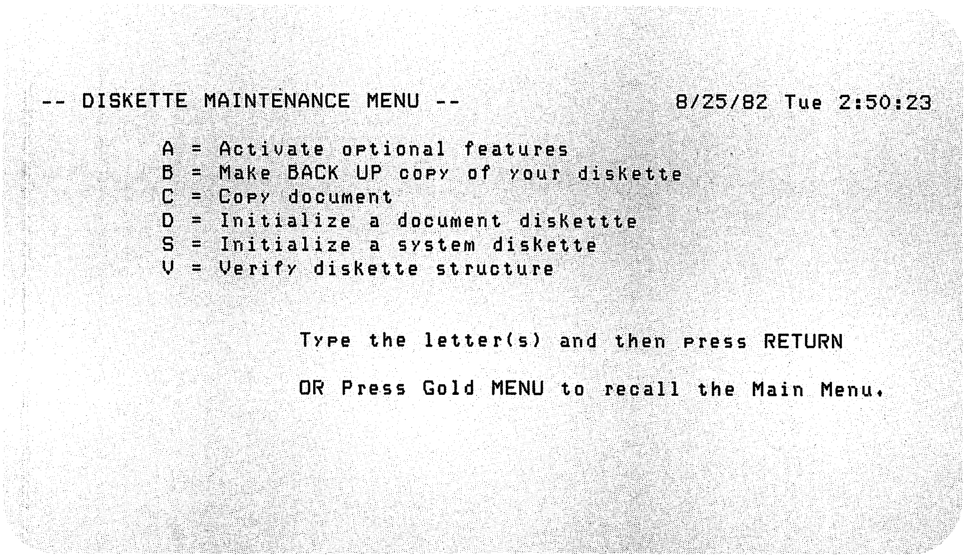
List Processing is an optional feature that you must activate on your system diskette before using it. You need to activate the feature only once.

To activate this feature, you need: 1) the List Processing feature diskette (labeled *WPS LIST PROCESSING RX50),* and 2) a system diskette (labeled *WPS THE BASICS RX50).*

Is List Processing Already Active?

List Processing may already be active on your system diskette. To check if it is, first display the Diskette Maintenance Menu (see Figure 2) by typing MC and pressing RETURN.

Select the A option and press RETURN. The Activate Features Menu appears (see Figure 3).



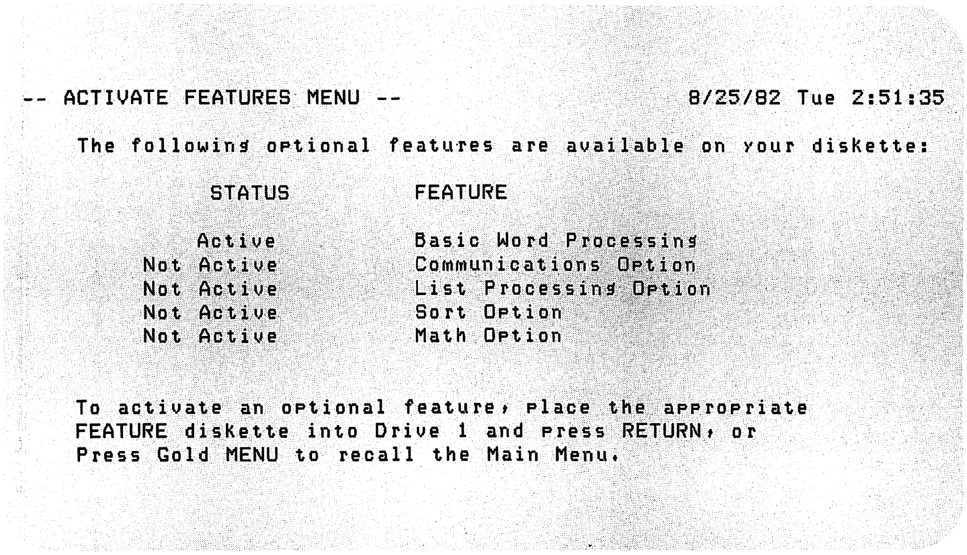
```
-- DISKETTE MAINTENANCE MENU --                    8/25/82 Tue 2:50:23

          A = Activate optional features
          B = Make BACK UP copy of your diskette
          C = Copy document
          D = Initialize a document diskettte
          S = Initialize a system diskette
          V = Verify diskette structure


                   Type the letter(s) and then press RETURN

                   OR Press Gold MENU to recall the Main Menu.
```

Figure 2 The Diskette Maintenance Menu



```
-- ACTIVATE FEATURES MENU --                          8/25/82 Tue 2:51:35

     The following optional features are available on your diskette:

                STATUS           FEATURE

                Active           Basic Word Processing
            Not Active           Communications Option
            Not Active           List Processing Option
            Not Active           Sort Option
            Not Active           Math Option


     To activate an optional feature, place the appropriate
     FEATURE diskette into Drive 1 and press RETURN, or
     Press Gold MENU to recall the Main Menu.
```

Figure 3 The Activate Features Menu

If *Active* appears before *List Processing Option,* then List Processing is active. Press Gold MENU to recall the Main Menu. Turn to Chapter 3 for instructions on how to use the feature.

If *Not Active* appears before *List Processing Option,* activate the feature as explained in the next section.

To Activate List Processing

While the Activate Features Menu displays:

1. Remove any diskette in drive 1.
2. Put the List Processing feature diskette in drive 1.
3. Leave your system diskette in drive 0.
4. Close both drive doors.
5. Press RETURN.

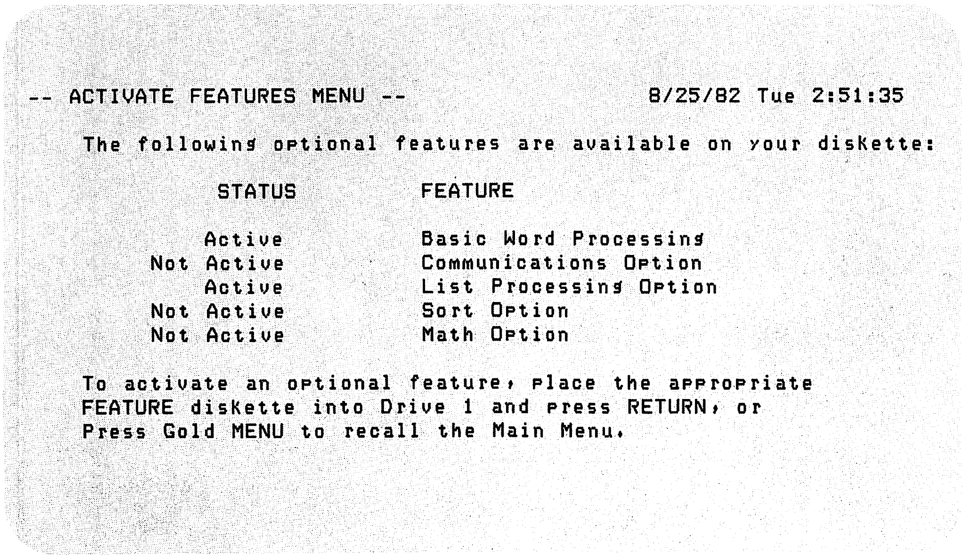
DECmate checks drive 1 to make sure it contains a feature diskette. If it does, DECmate activates the feature, and you see this message:

```
 -- Activating Special Feature Option --

Activation in progress, please stand by...
```

The activating process takes less than a minute. During this time noises come from the drives. When the activating process is complete, the Activate Features Menu reappears, showing the List Processing feature as *Active.* See Figure 4.

Press Gold MENU to return to the Main Menu. Type M and press RETURN twice to view page three of the Main Menu. The List Processing (LP) option should now be included.



```
-- ACTIVATE FEATURES MENU --                        8/25/82 Tue 2:51:35

   The following optional features are available on your diskette:

             STATUS          FEATURE

             Active          Basic Word Processing
         Not Active          Communications Option
             Active          List Processing Option
         Not Active          Sort Option
         Not Active          Math Option

   To activate an optional feature, place the appropriate
   FEATURE diskette into Drive 1 and press RETURN, or
   Press Gold MENU to recall the Main Menu.
```

Figure 4 List Processing Activated

Remove the List Processing feature diskette from drive 1, and save it in case you need it again.

NOTE: *When you are finished activating your optional features, make a backup copy of your system diskette.*

If List Processing Does Not Activate

Check to see which feature diskette you are using. You may have activated another feature.

If List Processing does not activate, you may see one of these system messages during the activation process.

```
Drive 1 does not contain a valid FEATURE diskette.
```

There is an invalid feature diskette, such as a damaged feature diskette or an ordinary document diskette, in drive 1.

Press RETURN to recall the Activate Features Menu. Put the correct feature diskette in drive 1 and press RETURN.

`Error on drive 1 while trying to read block` (number).

An error developed during the activating process. The drive door might not be securely closed, or the drive cannot read the feature diskette.

Make sure the drive doors are securely closed. You cannot verify the feature diskette.

If you still cannot activate the feature, you may have a problem with your terminal. See the *DECmate II Owner's Guide* (EK–DECM2–0M–001).

NOTE: If you use List Processing with either Math or Sort, those features must also be active on your system diskette.

3

Basic List Processing

In this chapter you will learn how to create:

- A list document
- A form document
- A selection specification document

In the next chapter, you will run List Processing to produce form letters.

Creating a List Document

You create a list document as you do any other document, by typing C from the Main Menu and giving it a name.

A list document is a collection of information that List Processing merges with a form document.

A list is made up of records. Records are made up of individual fields. Records and fields must conform to simple but strict rules for DECmate to use them correctly.

Records

The list document is divided into *records*. Each record contains information about a single person or thing.

```
<title>Mr.
<first>Abraham
<last>Lincoln
<street>123 Main St.
<city>Lexington
<state>KY
<zip>06565
<>
```

This is an example of a record.

If the list document is a personnel file, each record contains information on a single employee. If the list document is an inventory list, each record contains information on each separate part.

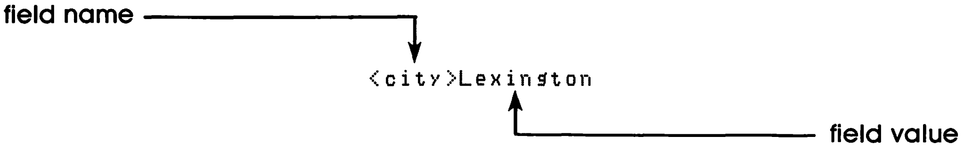
Each record can have up to 2500 characters, including *field names*, angle brackets, and other characters.

Each record must end with a *diamond* <>, created by the left and right <angle brackets>. In a list document, a record is defined as all fields between two diamonds or all fields before the first diamond.

When typing a record, press RETURN *twice* after typing the diamond. Pressing RETURN twice adds a blank line between records and makes it easier to tell where one record ends and another begins. You can use the PARA key to move from one record to the next.

Fields

Each record is made up of *fields*. A field consists of a field name inside <angle brackets> and the *field value*. The field value is the text following the right angle bracket > that ends the field name, up to the next left angle bracket.



```
<city>Lexington
```

Field Names. The field name is the text between the left and right <angle brackets>. The following record contains fields named *street, city, state*, and *zip*.

```
<street>123 Main Street
<city>Lexington
<state>KY
<zip>02140
<>
```

The three restrictions on a field name are:

1 *It must not include angle brackets, > or <*, since these are used to mark the beginning or end of the field name.

2 *It must not start with an exclamation point, !.* Some field names starting with !, such as <!S>, are special commands (see Chapter 5).

3 *It must not be longer than 30 characters.*

The name you give a field should indicate the meaning of its value. For instance, if you are creating records with people's names, use <first> and <last> as field names, instead of <f> and <l>.

Typing Field Names. *You must always type a field name in exactly the same way. Use the same spaces and uppercase or lowercase letters each time you use that field name.* If you have a field called <address> in some records, be sure you type <address> in all other records and related documents.

You must always be consistent with your field names. If you have used <address> in your list document, you must not type the following variations in your form document:

- <ADDRESS>, since it has all capitals
- <Address>, since it has an initial capital
- < address >, since it has spaces

DECmate cannot recognize any variations of the field name, so it cannot select any field but <address>.

Field Values. A field's value is the text after the field name. The value is the information that will go into the form document. Type the field value exactly as you want it to appear. Any spaces, tabs, or invisible characters that you type after the right angle bracket (>) that ends the field name become part of the field value. The field value ends at the next left angle bracket (<).

Press the < > (ENTER) key on the Editing keypad to automatically advance or back up to the start of a field value. This saves you time when typing in field values.

When you type a list document, press RETURN after each field value. The next field appears on the following line. For example:

```
<title>Mr.(RETURN)
<first>Theodore(RETURN)
<last>Roosevelt(RETURN)
<address>407 San Juan Hill(RETURN)
Cambridge, Mass. 02140(RETURN)
<>
```

A hard return *immediately* before a left angle bracket < is *not* part of any field value. All other hard returns in a field *are* part of that field's value. They appear in the processed copy.

For example: The hard return after the word *Mr.* is not part of the field <title>. But the return after *Hill* is part of the field <address>. When DECmate inserts the value of <address> into the *output document,* it inserts a hard return after *Hill.*

NOTE: *If the character just before the start of the next field name is a space, a tab, or a line-end character, it is not part of the field value.*

What to Include in a List

When creating a list document, you must determine what information you need to include for your business.

In a letter, you usually use people's names in the following three ways:

Address: You use the full name, including any titles, suffixes, or degrees:

```
Mr. Chester A. Arthur, Jr.
```

Salutation: You use an abbreviated form:

```
Dear Mr. Arthur:
```

Body: You refer to the person by first name:

```
All of us at the Southport Book Store would like
to thank you, Chester, for your patronage in the
past year...
```

If you think you may use all three styles, you should include five separate fields in each record of your list document. For example:

```
<title>Mr.
<first>Chester
<middle> A.         (note the space)
<last>Arthur
<suffix>, Jr.       (note the comma and space)
<>
```

In the fields <middle> and <suffix>, spaces and a comma are part of the field's value. They are included here instead of in the form document. In records where the <middle> and <suffix> fields are empty or missing, you do not want DECmate to insert these spaces and comma. So put them in the list document, not the form document.

If your list includes a married woman, such as Mrs. James Madison, make sure you do not process the list through a form document that refers to people by first names alone. For example:

```
Dear Mrs. Madison:

All of us at the Southport Book Store would like to thank you,
James, for your patronage in the past year...
```

You can solve this problem by including two first name fields in all records: one for formal address, one for familiar address. Then a record looks like this:

```
<title>Mrs.
<formal>James
<familiar>Dolly
<last>Madison
<>
```

Including these field names in a record also lets you use a nickname in the field <familiar>.

More on Creating a List

- **List Size**

  Avoid long list documents by creating several specific list documents. For example: Customers Since July 1, or Customers A–D. This method allows you to use FR and TO effectively.

- **Order of Records**

  List Processing processes records in the order they appear, beginning at the top of the list document. If you are preparing personalized form letters, the order of the records probably does not matter.

  If the order of the records does matter, insert each new record in the list document in the order you want. For instance, to produce a table with lines in alphabetical order by last names, insert records into the list document so that the <last> field is in alphabetical order.

  You can use Sort to arrange records from a list document in a specified order. You must first purchase the Sort feature and have it active on your system. For more information, see *Using Sort* (AA–N185A–TA).

- **Order of Fields**

  The order in which you type the fields in a record does not matter.

In this example, both ways are correct.

```
<title>Mr.
<first>Abraham
<last>Lincoln
<address>123 Main St.
Lexington, Mass.
02540
<>

<last>Lincoln
<first>Abraham
<title>Mr.
<address>123 Main St.
Lexington, Mass.
02540
<>
```

- **Printing a List Document**

  You can print your list document, since the list document is an ordinary word processing document. You can include highlighting, rulers, print control commands, and invisible characters. They work in the usual way when printing a list document.

- **Using Numeric Fields**

  Any time you include numbers in a field value, consider making that field a *numeric field*. List Processing can work with the Math feature, allowing you to perform math calculations on your field values. For more information on the Math feature, see Chapter 5, and *Using Math* (AA–N186A–TA).

Exercise 1: Create a List Document

In this exercise, you will create a customer mailing list. Use a new, initialized diskette and save the results of each exercise. In the next chapter, you will combine this list with a form document and selection specification document to produce form letters when you run List Processing.

1 Create the list document with the name *Customer List Document.* Type in the following fields:

```
<date>
<title>
<first>
<familiar>
<last>
<:limit>
<address>
<>
```

Press RETURN twice.

2 To save time, cut and paste the record several times. To cut and paste, press BACK UP, PARA, SEL, PARA, GOLD CUT. The blank record is now in the paste area. Press PASTE three times. Now you have four blank records.

3 Go back to the top of the list document. Press the < > (ENTER) key to move the cursor to the end of each field name. Fill in the records as shown below. You can use the Gold DATE & TIME key to insert today's date.

```
<date>
<title>Mr.
<first>Abraham
<familiar>Abe
<last>Lincoln
<:limit>0
<address>1865 Gettysburg St.
Lexington, MA 02540
<>
```

(continued on next page)

```
<date>
<title>Mr.
<first>George
<familiar>George
<last>Washington
<:limit>100
<address>Mt. Vernon Ave.
Boston, MA 02301
<>

<date>
<title>Mr.
<first>Woodrow
<familiar>Woody
<last>Wilson
<:limit>25
<address>14 Points Ave.
Yale, MA 02505
<>

<date>
<title>Ms.
<first>Susan B.
<familiar>Sue
<last>Anthony
<:limit>50
<address>Silver Dollar St.
New Bedford, MA 02739
<>
```

The field name <:limit> includes a colon because it is a numeric field. The properties of numeric fields will be discussed later.

When you have finished, file this list document.

Creating a Form Document

The form document shows DECmate:

- What format the final output takes
- Which information can change from copy to copy

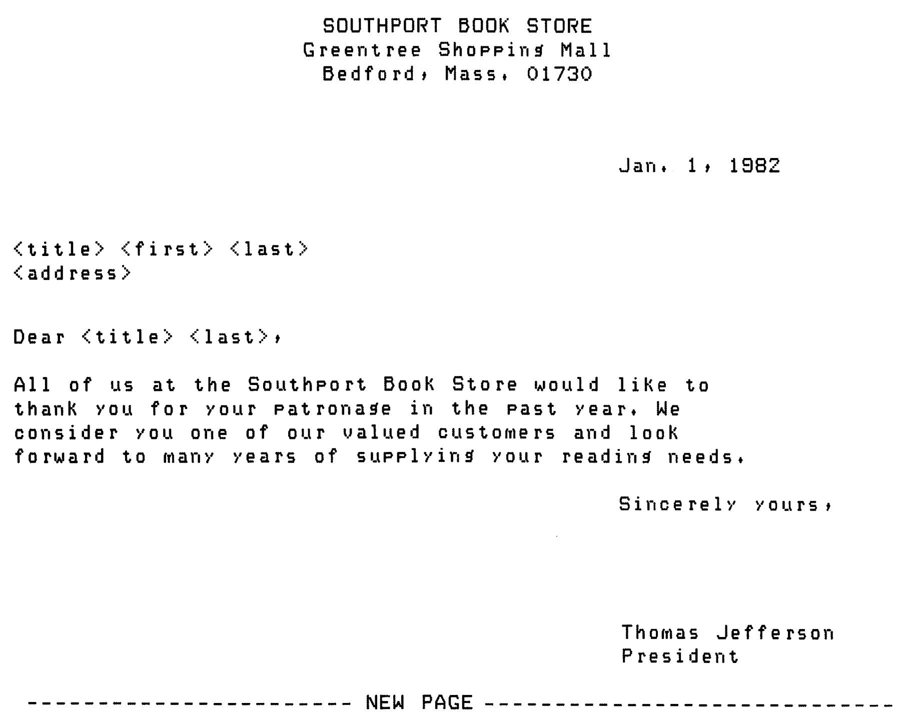
At the end of the section is an exercise to create a form document.

Creating the Form Document

You create a form document as you do any other document, by typing C from the Main Menu and naming the document.

To create a form document, type the basic form letter you want to produce repeatedly. Where you want to use a field value from the list document, type the field name, enclosed in <angle brackets>.

For instance, to produce personalized form letters using the names in a mailing list, type a sample letter. Put in the necessary rulers, highlighting, and invisible characters. But for the text that changes from letter to letter, type the appropriate <field name>. The field name must match the field name in the list document. Figure 5 shows an example of a form document.



```
                          SOUTHPORT BOOK STORE
                         Greentree Shopping Mall
                          Bedford, Mass. 01730


                                                   Jan. 1, 1982


   <title> <first> <last>
   <address>


   Dear <title> <last>,

   All of us at the Southport Book Store would like to
   thank you for your patronage in the past year. We
   consider you one of our valued customers and look
   forward to many years of supplying your reading needs.

                                                   Sincerely yours,




                                                   Thomas Jefferson
                                                   President
    ---------------------- NEW PAGE ----------------------------
```

Figure 5 A Form Document

Remember to type all <field names> the way you did in the list document. If you used uppercase letters in the list document, use uppercase letters for that field name in the form document. Likewise, use spaces in the form document where you used them in the list document.

You can insert a field name in more than one place in the form. In the example in Figure 5, note that there are two places each where the field names <title> and <last> are used.

NOTE: You do not have to use all the available fields in a record.

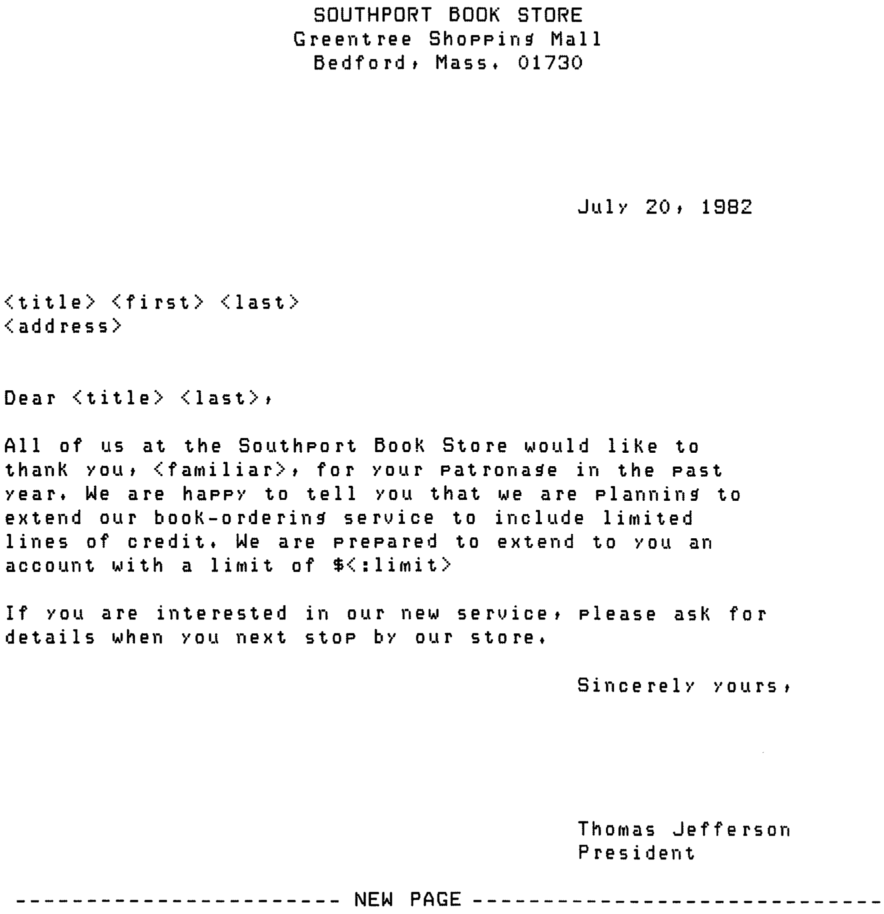
If you are creating a single-page form document, such as a letter, always end with a NEW PAGE mark. You can include blank lines (hard returns) before the NEW PAGE mark. However, do not include blank lines or spaces *after* the NEW PAGE mark. These can change the placement of the following output documents.

Formatting in a Form Document.

- DECmate uses the rulers in the form document to dictate the margins and format of the output document.
- DECmate inserts word wraps when adding text from the list document.
- DECmate adjusts hyphenated words to match the margins. Because you do not know where word breaks will fall in the output document, include invisible hyphens in long words.
- DECmate adjusts field values to fall in their proper place in the output document, even though those field names do not necessarily align with the correct tab stops in the form document.

Exercise 2: Create a Form Document

Create a document on your diskette named *Form Letter*. Type in the following form letter. In the next chapter you will merge it with your Customer List Document to create form letters.



```
                         SOUTHPORT BOOK STORE
                        Greentree Shopping Mall
                         Bedford, Mass. 01730




                                               July 20, 1982




<title> <first> <last>
<address>


Dear <title> <last>,

All of us at the Southport Book Store would like to
thank you, <familiar>, for your patronage in the past
year. We are happy to tell you that we are planning to
extend our book-ordering service to include limited
lines of credit. We are prepared to extend to you an
account with a limit of $<:limit>

If you are interested in our new service, please ask for
details when you next stop by our store.

                                               Sincerely yours,





                                               Thomas Jefferson
                                               President
 ----------------------- NEW PAGE -----------------------------
```

Remember to include spaces between two field names, and a NEW PAGE mark at the bottom of the letter.

When you are finished, file this document.

Creating a Selection Specification

This section explains the function of a selection specification document. At the end of this section you will create a specification document that you will use in the next chapter to produce form letters.

You create a specification document as you do any other document, by typing C from the Main Menu and naming the document.

A selection specification (also known as *specification document* or simply *spec*) is actually a computer instruction that tells your DECmate how to select records from your mailing list. Because it is a computer instruction, there are simple but strict rules to follow so that the specification works exactly as you want.

By testing each record, selection specifications can select every record or just certain records in your list. DECmate checks whether the values in your list agree with the selection specification. If they are compatible, DECmate processes them into a form. If the values are not compatible, DECmate goes to check the next record in the list.

You define the fields and the acceptable values.

Types of Selection Specifications

To Process Every Record. If you want to process every record in the list document, you could create a document with the following selection specification:

```
process record
```

This selection specification chooses every record in the list document.

To Process Some Records. The most simple selection specification that can choose certain records might look like this:

```
if <state>=VT
then process record
```

This tells DECmate to list process only those records that have a certain field value. For example, the records in your list might contain a field called <credit> with a value of either *good* or *bad*. The following selection specification processes only the *good* records:

```
if <credit>=good
then process record
```

Selection Specification Rules

Use these guidelines when you create a selection specification.

- Make the selection specification less than 860 characters, or 20 lines.
- Spell each field name exactly as it appears in the records in the list document. DECmate treats fields <credit>, <CREDIT>, and < credit> as different fields. Note that spaces within the angle brackets are treated as characters. They can change the meaning of the selection specification. Likewise, be consistent in using uppercase and lowercase letters.
- Type the field value immediately after the equal sign (=).
- The words *then process record* must occur on a separate line — that is, after a hard return.
- You can type spaces or tabs to indent each line of the selection specification. The spaces and tabs make no difference to the instructions. However, do not put spaces and tabs in the field value unless you want to test for them.
- The text to the right of the equal sign, up to the hard return, must match the contents of the field exactly. DECmate attempts to match spaces as part of the field value. Uppercase letters match only uppercase letters.

For more advanced specifications, see Chapter 5, Advanced List Processing.

Exercise 3: Create a Selection Specification Document

In this exercise you will create a simple selection specification document. You will use this spec in the next chapter to merge your Customer List Document with your Form Document to create some form letters.

Create a new document on your diskette named *Spec*. Type the following selection specification exactly as it appears here:

```
if <:limit>=<25> or more
then process record
```

This specification will test that each customer's credit limit is at least $25. It will ignore any values under $25.

Check that your specification matches this one exactly (including spaces). When you are certain they match, file the document.

Now that you have created a list document, a form document, and a selection specification document, you can run List Processing. Proceed to Chapter 4, Running List Processing.

4

Running List Processing

There are two steps to using List Processing. The first step is to create the list, form, and selection specification documents. These documents are discussed in Chapter 3.

The second step, discussed in this chapter, is to run List Processing: to make DECmate produce text using these three documents. In the exercise, you run List Processing on the documents you created in the previous exercises.

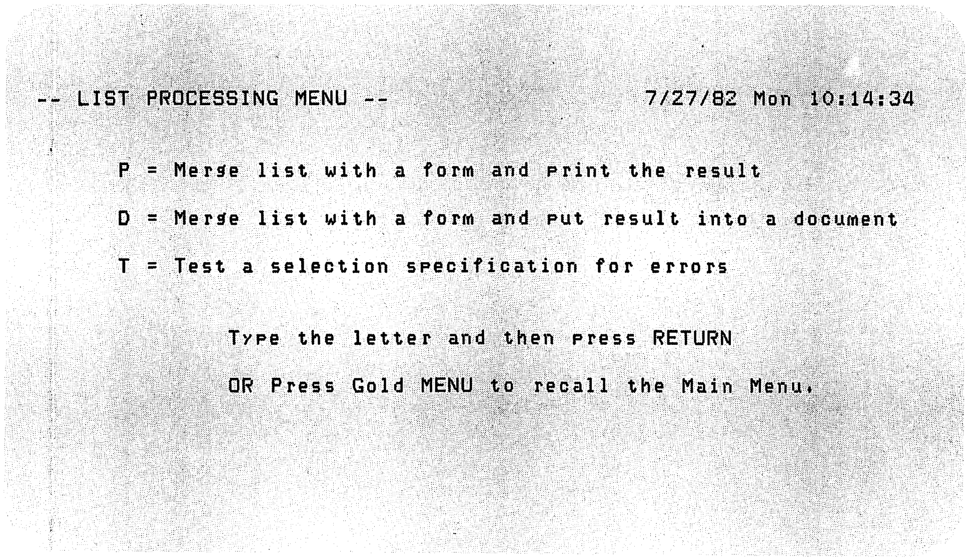
NOTE: You cannot use your terminal for other tasks while List Processing is running.

Running List Processing

The List Processing Menu

Before you can run List Processing, you need the list, form, and selection specification documents. Once you have created these, you can run List Processing.

To begin, type LP from the Main Menu and press RETURN. The *List Processing Menu* (see Figure 6) displays and offers you three options.



```
-- LIST PROCESSING MENU --                    7/27/82 Mon 10:14:34

        P = Merge list with a form and print the result

        D = Merge list with a form and put result into a document

        T = Test a selection specification for errors

                Type the letter and then press RETURN

                OR Press Gold MENU to recall the Main Menu.
```

Figure 6 The List Processing Menu

Two of these options let you choose between sending the output to a document or to a printer. The third option tests the selection specification. The following sections discuss options P and D. The T option is discussed at the end of this chapter.

P — Merge List with a Form and Print the Result. If you select P to send the output to a printer, DECmate prompts you for the list document, selection specification, and form document. Type in the document names or numbers.

DECmate displays the Print Menu of the form document. These settings format the output document. You can change any print settings in the usual way. DECmate stores the print settings of the form document with that document.

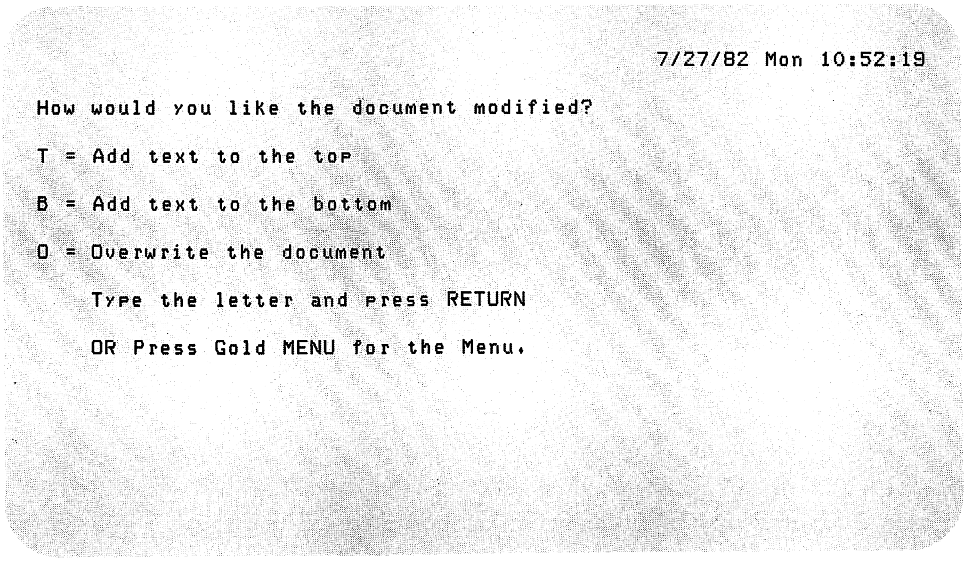
When the settings are correct, type YES or OK and press RETURN. DECmate then displays the List Processing Start Menu (discussed later in this chapter). After you have run List Processing, DECmate prints the results.

NOTE: *The printed results are not saved as a document. Put the result in a document if you want to use them again.*

D – Merge List with a Form and Put Result into a Document. If you select D to send the output to a document, DECmate prompts you for the name of the list document, selection specification, and the form document. Type in the document names or numbers.

DECmate then asks for the name of the document to receive the output. If you type the name of a document that does not exist, DECmate creates it — the name you type becomes that document's name.

If you specify a document that already exists, DECmate shows you the Document Modified display. See Figure 7. This display asks what you want to do with the text already in that document. You have three options to choose from.



```
                                                  7/27/82 Mon 10:52:19

How would you like the document modified?

T = Add text to the top

B = Add text to the bottom

O = Overwrite the document

    Type the letter and press RETURN

    OR Press Gold MENU for the Menu.
```

Figure 7 Document Modified Display

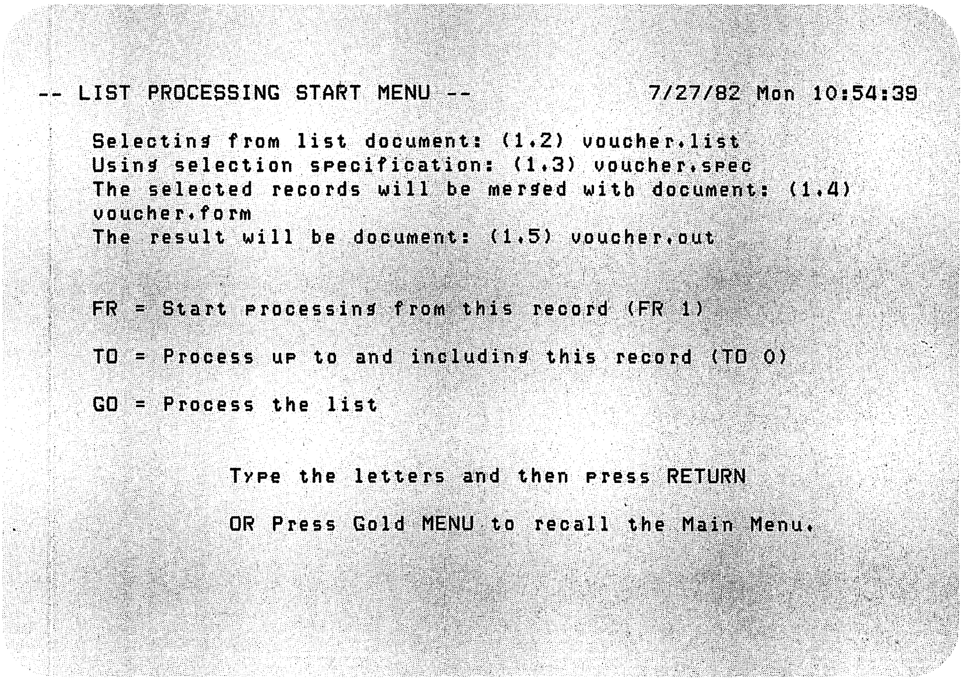
Type T or B and press RETURN to add the new List Processing output to the top or bottom of the document. DECmate saves the old text when you add the new text.

Type O and press RETURN to overwrite the existing document. Overwriting destroys any text already in the document. However, if List Processing selects no records, no text is added onto the document. Thus the old document remains the same.

You can also press Gold MENU from the Document Modified display. This returns you to the point where DECmate asked for the output document name. You can then name a different document to be the output document.

The List Processing Start Menu

After you select the P or D option, DECmate displays the List Processing Start Menu (see Figure 8). The top lines show the list, specification, and form documents you chose. The menu also displays three final options: FR, TO, and GO.



```
-- LIST PROCESSING START MENU --              7/27/82 Mon 10:54:39

   Selecting from list document: (1.2) voucher.list
   Using selection specification: (1.3) voucher.spec
   The selected records will be merged with document: (1.4)
   voucher.form
   The result will be document: (1.5) voucher.out


   FR = Start processing from this record (FR 1)

   TO = Process up to and including this record (TO 0)

   GO = Process the list


               Type the letters and then press RETURN

               OR Press Gold MENU to recall the Main Menu.
```

Figure 8 The List Processing Start Menu

FR and TO Options. Use these options when you want to process part of a list. For instance, if you set FR 15 and TO 22, then DECmate processes only the 15th through 22nd records of the list document. For DECmate to use a record, the record must be in this range *and* it must pass the tests in the selection specification.

To change either setting:

- Type the two-letter code (FR or TO).
- Press the space bar.
- Type the new value of that setting.
- Press RETURN.

The List Processing Start Menu now shows the new value of that setting.

Like the Print Menu, whenever you use the List Processing Start Menu, the FR and TO settings are reset to:

```
FR 1
TO 0
```

TO 0 continues List Processing to the end of the list document.

FR and TO can be set to any value between 0 and 999.

GO Option. The GO option begins List Processing. Type GO and then press RETURN when you are satisfied with the FR and TO settings.

While List Processing is running, you cannot use your terminal for other operations. Various displays scroll across your screen. These displays are explained below.

As DECmate list processes each new record, it displays the number of the record being processed. For example:

```
Record being processed: 1
```

Whether DECmate sends the output to a document or to a printer, you see the output roll up your screen as it is produced. When DECmate sends the output to the printer, you see text on the screen before it appears at the printer a few seconds later.

When List Processing is finished, you see a display like this:

```
          Records selected: 2

          Records processed: 5


Press Gold MENU to recall the Main Menu
```

The number on the first line is the number of records DECmate merged with the form. The number on the second line is the number of records DECmate looked at (depending on the FR and TO settings). By comparing these numbers, you can determine how many records were skipped because they did not satisfy the selection specification.

When you press Gold MENU, you can use your terminal for normal word processing once again.

If There Is No Output

Sometimes the FR and TO settings and the selection specification are so restrictive that no records are processed. Other times you may have typed the selection specification incorrectly. When List Processing is finished, you see a display like this:

```
           Records selected: 0

           Records processed: 5


Press Gold MENU to recall the Main Menu
```

In this case, List Processing has no output. If this occurs, refer to the section, If List Processing Fails, near the end of this chapter.

Exercise 4: Running List Processing

In this exercise, you will combine the documents you created in Chapter 3 to run List Processing. Use the same diskette that stores the documents. If you have not already done so, turn back to Chapter 3 to complete Exercises 1, 2, and 3.

So far, you have created a list document (Customer List Document), a form document (Form Letter), and a selection specification document (Spec).

Run List Processing and Print the Result

Now that all your documents are ready, you can run List Processing. The P option will print the form letters immediately, and will not save the results in a document. Follow these steps to answer the menus and prompts:

1. From the Main Menu, type LP and press RETURN. The List Processing Menu displays.
2. Type P and press RETURN to send output to the printer.
3. The system asks you for the name of the list document you want to use. Type the name or number of your list document. Press RETURN.
4. The system asks you for the name of the selection specification document you want to use. Type the name or number of your selection specification. Press RETURN.
5. The system asks you for the name of the form document you want to use. Type the name or number of your form document. Press RETURN.
6. The form document's print menu displays. Examine the Print Menu settings. Make any changes you think appropriate, type YES or OK, and then press RETURN.
7. The List Processing Start Menu displays. Type GO and then press RETURN.

The selection specification appears briefly in the upper-left corner of the screen. It is replaced by a Record Being Processed message that continually updates. The output from List Processing begins rolling up the screen. Slightly later it prints. When all records have been processed and printed, the Records Processed/Selected message appears.

Study your output. Note that List Processing has replaced all the fields in the form document — <title>, <last>, <:limit>, and so on — with information from your mailing list. Note also that List Processing selected only three of the four records in your mailing list. Mr. Lincoln's record was not processed into a form letter, because your specification called for a minimum <:limit> of 25, and Mr. Lincoln's <:limit> is 0.

Run List Processing and Store the Results in a Document

In this exercise, you will save the List Processing results as a document on your diskette. You will then print the results from the Main Menu.

1. Type LP from the Main Menu. The List Processing Menu displays.
2. Type D and press RETURN to send output to a document.
3. The system asks you for the name of the list document you want to use. Type the name or number of your list document and press RETURN.
4. The system asks you for the name of the selection specification document you want to use. Type the name or number of your selection specification and press RETURN.
5. The system asks you for the name of the form document you want to use. Type the name or number of your form document and press RETURN.
6. The Document Modified Menu displays. Type *Result* for the name of your output document and press RETURN.
7. The List Processing Start Menu displays. Type GO and press RETURN to begin List Processing.
8. Once you return to the Main Menu again, print your output document called *Result*.

If List Processing Fails

If you run List Processing and get no results — no records are selected and, therefore, no form letters are produced — it is usually because of some minor flaw in one of your three documents. This flaw could be an extra space or other detail easily overlooked. Make sure:

- You typed the list document, form document, and selection specification exactly as indicated in Exercises 1, 2, and 3
- You did not add extra spaces, lines, or page-end marks that changed the format of the output
- You followed the List Processing procedure in this exercise exactly and selected the proper options

If these checks still produce no results, make sure that your DECmate system is functioning properly by trying other word processing functions.

Then, if necessary, re-enter new, smaller versions of a list document, form document, and selection specification and run List Processing with these.

To Stop List Processing

To stop List Processing, press Gold HALT. After a few seconds delay, processing stops. Then DECmate displays the total number of records selected and processed. If you chose the P option, DECmate prints all records selected up to the point you pressed Gold HALT.

Return to the Main Menu by pressing Gold MENU. You cannot finish the operation you canceled. If you decide to do List Processing again you must start from the beginning. However, you can set FR to start where you stopped the previous time.

Stopping the Printer

List Processing uses your terminal while it is running. If you choose the P (print output) option, you cannot stop the printer while it prints the list-processed output (except by pressing the Pause button, if your printer has one). The Stop Printer Menu is not available to you. However, you can set the printer to stop from the Print Menu.

Suppose you are printing on single sheets of paper, such as letterheads. To stop at the top of every new page so you can insert a new piece of paper, set SE to YES when the Print Menu is displayed. You can also set SE FIRST at the Print Menu to stop the printer at the top of the first page.

When DECmate is ready to print the first list processed page, the display on the screen freezes. However, the beeper does not sound. When you notice the display is frozen, insert a sheet of paper into the printer (or take other appropriate action) and then type R. *Do not press RETURN* as you would when using the Stop Printer Menu.

Each time the display stops, DECmate is waiting for a command to resume printing. You have two choices:

- Insert another sheet of paper and type R to resume printing — the usual response.
- Type N to advance the paper in the printer one page.

If processing is still going on when the screen freezes, you can also press Gold HALT to stop processing, as described in the previous section.

Remember, the printing lags behind what you see on the screen. When you see the message DOCUMENT FILING BEING COMPLETED, there are still a few pages to be printed. Continue to feed sheets of paper and type R until you see the message giving the number of records selected and processed. Press Gold MENU to recall the Main Menu.

Processing Large Lists

When running List Processing, the FR and TO settings can only be set to 999. For records numbered 1000 and up, you must set FR to 999 and TO to 0. This processes the list from 999 to the end of the list.

If there are more than 2000 records in the list document, the numbers that display on the screen when List Processing is running do not reflect the true count of the records processed. The message showing the number of records selected is also not correct. However, list processed output is still correct.

Testing a Selection Specification

T — Testing a Selection Specification for Errors

Your third choice at the List Processing Menu is to test your specification.

When you run List Processing, DECmate *automatically* tests your selection specification to make sure it is valid. This test occurs with whatever option in the List Processing Menu you choose.

The T (Test) option in the List Processing Menu lets you test a selection specification without running List Processing. Select this option if you are not sure you have typed the specification properly. If there are errors in the specification, you get the error message described below. If there are no errors, DECmate tells you so, using a display such as this:

```
if <overdue>=<2> or more
then process record

     No errors in specification
```

If the selection specification contains an error, DECmate marks the first error with the symbol ^. For example:

```
if <overdue>=<2> or more
then process reca
                ^
ERROR-- specification not understood starting at this point.
```

If the selection specification contains a numeric field value with an error, you may get the message:

```
ERROR-- invalid number specified
```

Note the location of the error, and press Gold MENU to recall the Main Menu. Edit the selection specification document to correct the error.

If the selection specification does not contain any errors, DECmate processes the list.

5

Advanced List Processing

This chapter discusses further details about creating documents and running List Processing.

The List Document

This section includes shortcuts and helpful hints you can use in creating list documents.

Invisible Hyphens

Use *invisible hyphens* in field values with long words. For example:

```
<name>International Brotherhood of Electricians
<>
```

Insert invisible hyphens:

```
<name>In ter na tion al Bro ther hood of Elec tri cians
        ^   ^  ^    ^      ^    ^            ^   ^
```

Comments

Use *comments* in your list document to help others who might use your list. Comments are optional text used to describe the information in the list document: what the fields are, and the correct form of each field name. Remember to keep your comments short, because they do use up disk space.

Here is an example of useful comments:

```
----------------------- START CONTROL -----------------------
comment

This is the customer mailing list. Each record has fields
<title>, <first>, and <last> to record the person's name, and
<address> for complete mailing address; <:owed> is the amount
they owe us at the first of the month.

------------------------ END CONTROL ------------------------
```

1 Press GOLD Command

2 Type *Comment* and press RETURN

3 Type the comment as needed

4 Press GOLD Command to end control

Cut and Paste

Use cut-and-paste to *cut* a blank record into the paste area. Press the PASTE key to insert the blank record into your list document. Then fill in the empty fields.

To delete a record, use the cut operation.

To move a record to a different place in the same list document, cut and paste it. CUT the record out of the document, position the cursor where you want to put the record, and press PASTE.

For more details on cut-and-paste, see the *User's Guide* (AA–N563A–TA).

Abbreviation and Library Documents

If you use List Processing often, you should use an *abbreviation* or *library document* to store a blank record.

For more information on the abbreviation and library functions, refer to the User's Guide.

Printing a List Document

You can print your list document, since the list document is an ordinary word processing document. You can include highlighting, rulers, print control commands, and invisible characters. They work in the usual way when printing a list document.

Using Empty and Missing Fields

Empty and missing fields contain no text. When you type a list document, you may not have all the information you need. For instance, you may not know someone's first name or zip code. You can leave out some field names and values in a record. DECmate performs List Processing on the information available.

In a customer mailing list, suppose you did not know Mr. Filmore's first name. You could include the <first> field, and press RETURN. This is an *empty* field; it has no field value:

```
<title>Mr.
<first>
<last>Filmore
<address>407 Memorial Drive
Cambridge, Mass. 02140
<>
```

Or you could leave out the <first> field entirely. This is a *missing* field:

```
<title>Mr.
<last>Filmore
<address>407 Memorial Drive
Cambridge, Mass. 02140
<>
```

If a form document includes the field name <first>, DECmate looks in the list document for that field. If the field is empty or missing, then DECmate inserts no text in the form document. For example:

```
Mr.  Filmore
407 Memorial Drive
Cambridge, Mass. 02140

Dear Mr. Filmore:

    All of us at the Southport Book Store would like to
thank you,  , for your patronage in the past year. We ...
```

Note that on the top line, there is an extra space between Mr. and Filmore. These spaces were supposed to precede and follow the first name. "Dear Mr. Filmore:" is all right, because the form did not call for the first name. But in the body, the writer meant to call Mr. Filmore by his first name. Since his record in the list document does not have any text for <first>, DECmate again inserts nothing. Here, the absence is noticeable.

Be careful in creating a selection specification that might test an empty or missing field. Suppose your records have a field <credit> that contains a GOOD or BAD value. One selection specification might select the GOOD records, and another select the BAD records. A record where the <credit> field is empty or missing is not selected by *either* specification.

Using Numeric Fields

Use *numeric fields* in Math. You can purchase and activate the Math feature to use with List Processing. Once Math is activated, it works during both editing and List Processing. If you set up your list document with appropriate numeric fields, Math allows DECmate to perform calculations on the field values.

Note that you do not need Math to create and use numeric fields. List Processing can treat numbers as simple characters. You need Math if you want to perform *calculations*.

For more information on Math, see *Using Math* (AA–N186A–TA).

Any time that you include numbers in the field value, consider making that field a numeric field. A numeric field name is any field name that begins with a colon (:), such as <:cost>.

The rules for creating a numeric field are:

- Each numeric field must have no more than 13 valid characters.
- Numeric field values with decimal points must have no more than six characters after the decimal point. For example: 13.365785.
- Some symbols in the numeric field value are valid only in certain positions:
    - The characters $ * + ( ) can appear no more than once, if they appear.
    - The characters $ * + (can appear only at the beginning, if they appear.
    - The character) can appear only at the end, if it appears.
    - The + sign must come first, if there is one.
    - The – sign must be either first or last, if it appears.
    - The $ sign must come before the * and after the + or – signs.
    - Each pair of parentheses must enclose numbers.
    - The characters ( ) and the – sign cannot appear in the same field value.
    - There must be no empty pairs of parentheses.
    - Commas serve as numeric separators.

The following are examples of valid numeric fields, and their numeric values:

Numeric Field	**Numeric Value**
<:cost>123.50	123.5
<:cost> 123.50	123.5
<:cost> +123.50	123.5
<:cost>$123.50	123.5
<:cost>**123.50	123.5
<:cost>–123.50	–123.5
<:cost>(123.50)	–123.5

You can use a maximum of 13 digits in a numeric field value, with a maximum of six digits to the right of the decimal point. If you must include more than 13 digits in a field value, then do not make the field name a numeric field name.

The following are examples of invalid numeric values:

Invalid Field Value	**Reason**
<:cost>AB 123.5	Letter before number
<:cost> +– 123.5	Signs contradict
<:cost>123.5)	Missing parenthesis
<:cost>123,456,789,123.456	Too many digits
<:cost>123,456.7891234	Too many digits after decimal point

The Form Document

Different Types of Form Documents

Continuous-Form Envelopes. Envelopes attached to continuous-form paper allow you to insert them into your printer. Create the following form document for List Processing envelopes to accompany your form letters.

```
-------------------------- L ------------------------------ R

                           <title> <first> <last>
                           <address>

--------------------------NEW PAGE--------------------------
```

Put your address in the corner if necessary.

You must adjust your form's print settings in the Print Menu when you run List Processing. You will have to experiment, since envelopes can come in any size.

In DECmate Word Processing, 6 lines equal 1 inch. Try setting your top margin (TM) to 8 lines, your bottom margin (BM) to 0 lines, and your page size (PS) to 24. The page size causes DECmate to treat each envelope as a new page, to advance to the next envelope. The top margin starts the printing in the middle of the envelope face.

For more information on using the print settings, refer to the *DECmate II User's Guide* (AA–N563A–TA).

Individual Envelopes. Create the form shown in the last example for List Processing individual envelopes. Set the form's print setting to stop before each page (SE YES). Remove the tractor or sheet feeder and hand-feed the envelopes into the printer. Press R (Resume) at the Main Menu to start each printing sequence.

For more information on using the SE setting, refer to the *DECmate II User's Guide* (AA–N563A–TA).

Labels. Create the following or a similar form document to list process mailing labels.

```
<title> <first> <last>
<address>
-------------------------NEW PAGE-------------------------
```

You must adjust your form's print settings in the Print Menu when you run List Processing. You will have to experiment since labels can come in any size.

In DECmate Word Processing, 6 lines equal 1 inch. Try setting your top margin (TM) to 2 lines, and your page size (PS) to equal the size of the label. The page size causes DECmate to treat each label as a new page, to advance to the next label. The top margin starts the printing at the top of the label.

For more information on using the print settings, refer to the *DECmate II User's Guide* (AA–N563A–TA). You can also process labels with the form shown in the next section, Forms with Multiple Columns.

Forms with Multiple Columns. You can process forms that have multiple columns in two ways:

With a letter quality printer, you can use the multicolumn printing feature. For more information, see the User's Guide.

With an automatic sheet feeder, draft printer, or letter quality printer, you can create the following form:

```
<first field> <second field> <> <first field> <second field> <>

<first field> <second field> <> <first field> <second field> <>
```

DECmate prints the first record on the left, followed by the second record. The third record goes on the next line left, and so on. You can use as many columns as the paper allows.

For more information on using multicolumn printing, refer to the *DECmate II User's Guide* (AA–N563A–TA).

Tables

In List Processing it is possible to produce a table of information by using a form document that does not end with a NEW PAGE mark.

For example, if the bookstore in the examples merged its customer mailing list with the following form document, it would get a directory of its customers:

```
The following is a list of our Massachusetts customers as of
January 1, 1982.
-------------------------------------------------------------
Lincoln, Abraham
1865 Gettysburg St.
Lexington, Mass 02540

Young, Brigham
Seven Sisters Ave.
Brockton, Mass 02444
```

The following sections discuss details about creating a table with List Processing.

Including Leaders and Trailers. When making a table or directory, you may want to put some information before or after the list. In a telephone directory, you might want a title and column headings to precede the list of people and telephone numbers. You might want to include dialing instructions.

You produce *leaders* and *trailers* by putting the commands <!S> for *start* and <!E> for *end* in the form document.

The command <!S> in a form document marks the beginning of the *repetitive area.* Text *before* <!S> in the form document is produced before List Processing of records begins, and is produced only once. This text is the *leader.*

The command <!E> in a form document marks the end of the repetitive area. Text *after* <!E> is produced after all records are processed, and is produced only once. This text is the *trailer.*

A form document can have only one <!S> and only one <!E> command. The <!S> command must precede the <!E> command.

If you are using Math, you can include numeric field names, such as <:total>, in the trailer. DECmate does the necessary calculations and substitutes the resulting value for the numeric field name. For more information on using numeric fields in the trailer, see *Using Math* (AA–N186A–TA).

If you have a form document with a leader and a trailer:

1. DECmate prints the text in the leader. When it finds the <!S> command, List Processing begins. The start of the repetitive area is the <!S> command.
2. DECmate processes the first record from the list document and then finds an <!E> command in the form document. Since there are still records to be processed, List Processing does not stop.
3. DECmate returns to the start of the repetitive area and goes to the next record in the list document. DECmate then repeats the process in step 2.

4. When DECmate processes the last record and finds the <!E> command, the repetitive processing ends.
5. DECmate prints the text in the trailer, and the job is complete.

The general form of a form document with <!S> and <!E> commands is:

```
leader

<!S>

The body of repetitive information, brought over from the list
document

<!E>

trailer
```

If you leave out the <!S> command, there is no leader; the repetitive area begins at the top of the document. DECmate returns to the top of the form document for every new record it processes. If you leave out the <!E> command, there is no trailer; the repetitive area ends at the bottom of the document. If you leave out both commands, there is no leader or trailer. DECmate makes one copy of the entire form document for *each* record it processes. An example of a table with repetitive information follows.

Here is a form document for a table of parts:

```
L--------T--------C ----------T------------------R
            PARTS LIST
           for Project X

Part     Part Name            Cost
Number   ---------            ----
<!S>
<part#>  <name>               <:cost><!E>


Parts can be ordered from Stockroom 5.
```

This form has a leader and a trailer. The repetitive area, between <!S> and <!E>, consists of one line. It tells DECmate to: retrieve the value of <part >, advance to the tab position, retrieve the value of <name>, advance another tab position, and retrieve the value of <:cost> for each record.

Here is a list document for a parts list:

```
<part#>80-0030
<name>Lockwasher
<:cost>0.015
<>

<part#>80-0040
<name>Diode
<:cost>0.02
<>

<part#>80-0235
<name>Glue
<:cost>expendable
<>
```

Here is the output:

```
                PARTS LIST
               for Project X

Part      Part Name            Cost
Number    ---------            ----

80-0030   Lockwasher           0.015
80-0040   Diode                0.02
80-0235   Glue                 0.01

Parts can be ordered from Stockroom 5.
```

Spacing in Leaders and Trailers

Double Spacing. When the <!E> is at the end of a line in the form document, the table is single-spaced. If you moved the <!E> command to the start of the next line, there would be an extra return inside the repetitive area that would double space the table, since every record would be both preceded *and* followed by a return.

Tab Positions. The following form document inserts a hard return at the end of every list processed record, instead of the start. The spacing of the <!S> command has been adjusted so that this form gives the same output as the previous example.

```
L--------T------ C ----------T----------------R
          PARTS LIST
         for Project X

Part     Part Name          Cost
Number   ---------          ----

<!S><part#>                 <name>       <:cost>
<!E>

Parts can be ordered from Stockroom 5.
```

Notice that putting <!S> at the start of the line has pushed the field names out to the next tab position. In the form document, they no longer line up with the headings.

Whether the field names align with the tab position does not matter. DECmate does not print the <!S> command, but instead goes to the list document for records to process. Once the field values are inserted, the columns line up correctly.

Changing Rulers in Repetitive Areas. Sometimes you may want to change the ruler settings in the repetitive area. You might want to put <part > on the line above <name>, or align <:cost> fields on the decimal point. For example:

```
L--------T------- C ----------T-------------R       Ruler A
          PARTS LIST
         for Project X

Part     Part Name          Cost
Number   ---------          ----
<!S>
<part#>
L------- T------------------- . ------------R       Ruler B
        <name>      <:cost><!E>

Parts can be ordered from Stockroom 5.
```

In this example:

1 Ruler A formats the title, column heads, and <!S> command. It also formats the field <part > from the first record.

2 Ruler B formats the fields <name> and <:cost>.

3 DECmate finds the <!E> command and returns to the start of the repetitive area.

4 DECmate still uses Ruler B to process the second record and format the field <part > as well as <name> and <:cost>. Ruler A is ignored because Ruler B overrides it.

Sometimes, as in the example above, the second ruler works just as well on the text inserted after the <!S> command. To be sure, test the output document by printing it.

If you change rulers in the repetitive area, then you may need to put a ruler directly following <!S> in the form document.

```
L--------T------- C ----------T---------------R      Ruler A
             PARTS LIST
            for Project X

Part     Part Name            Cost
Number   ---------            ----
<!S>
L---------------------------------------------R     Ruler B
<part#>
L--------T--------------------  .-------------R     Ruler C
         <name>      <:cost><!E>

Parts can be ordered from Stockroom 5.
```

DECmate uses the rulers in this way:

1 Ruler A formats the title, the column heads, and the <!S> command.

2 Ruler B formats the field <part#>.

3 Ruler C formats the fields <name> and <:cost>.

4 DECmate finds the <!E> command and returns to the start of the repetitve area.

5 DECmate processes the second record and formats the field <part#> according to Ruler B, then the fields <name> and <:cost> according to Ruler C.

DECmate continues processing records and repeats steps 2, 3, and 4 until all records are processed. Then it prints the trailer.

Advancing to the Next Record. You can control the format of an output document by including a <> command in your form document.

If DECmate finds an <!E> command during List Processing, it returns to the start of the repetitive area. However, if DECmate finds a <> command, it continues forward in the form document and processes the next record.

DECmate advances to the next record when: 1) it finds <!E> in the form document, or 2) it finds the bottom of the form document. It also advances immediately to the next record when it finds the <> command in a form document.

(Do not confuse the <> command in the form document with the diamond <> in the list document. The diamond <> in the list document marks the end of a record. The <> command in a form document makes DECmate go back to the list document to get the next record for List Processing.)

Study the following form document. This form document has almost the same output as the previous examples:

```
L--------T------- C ----------T------------------R
             PARTS LIST
            for Project X

Part     Part Name            Cost
Number   ---------            ----
<!S>
<part#>  <name>               <:cost><>
<part#>  <name>               <:cost><>
<part#>  <name>               <:cost><!E>

Parts can be ordered from Stockroom 5.
```

The repetitive area of this form handles three records from the list document. After the <!S> command is a hard return that produces a blank line. DECmate then writes the part number, name, and cost. The diamond <> makes DECmate advance to the next record. The next line in the form does the same, and advances to the one after that. The <!E> returns DECmate to the <!S> at the top of the document because there are still records to process. The result looks like this:

```
L--------T-------C----------T----------------R
            PARTS LIST
           for Project X

Part     Part Name           Cost
Number   ---------           ----

80-0030  Lockwasher          0.015
80-0040  Diode               0.02
80-0235  Glue                0.01

80-0451  Hex Screw           0.03
80-0477  Hex Nut             0.017



Parts can be ordered from Stockroom 5.
```

This form accepts records in groups of three. If the number of records in the list document is not a multiple of three, this form produces one or two extra blank lines when it runs out of records.

Pressing RETURN after the <!S> command makes DECmate put a blank line before the first record and after every third record in the output document. This makes the table easier to read.

Skipping the Next Record. You can make DECmate skip a record in the list document by including a <> command. Be sure you use only as many <> commands in the form document as you need.

Here is a form document that skips every other record from the list document:

```
L--------T--------C-----------T------------------R
             PARTS LIST
            for Project X

Part     Part Name            Cost
Number   ---------            ----
<!S>
<part#>  <name>               <:cost><><!E>


Parts can be ordered from Stockroom 5.
```

Notice the <> command between <:cost> and the <!E> command. This command makes DECmate go to the next record. The <!E> returns DECmate to the start of the repetitive area and advances to the next record again. So one record is never processed. As a result, only every second record is processed.

(Do not confuse the <> command in the *form* document with the diamond <> in the *list* document. The diamond <> in the list document marks the end of a record.)

NOTE: *If you create a form document that skips records, DECmate may select a record but not process it (a skipped record). In this case, the number of records processed does not match the number of records in the output.*

Copying Lists. You can make DECmate produce a list document as output by using the <!R> command.

The command <!R> copies the characters from the start of the first field through the end of the record. The <!R> command does not copy the spaces between records; therefore, in the form document, you should follow <!R> with two hard returns to separate the records. The output document is also a new list document.

Include comments for the new list document as a leader in the form document. Here is an example of a form document that produces a list document as output. The command <!R> inserts in the list processed output an exact copy of each record:

```
This file contains active customer accounts.

<!S>
<!R>
```

The <!R> command is useful in producing sublists from a larger list. Sublists are discussed in greater detail in the next section.

Printing Sublists. Chapter 3 shows how a document called the selection specification lets you select records from the list document. Instead of processing each record in sequence, DECmate processes only selected records. You might use a form document such as the one above to make a copy of the list. If you select only certain records, List Processing copies only those records. The result: a list document containing a portion of the original list.

For instance, suppose your business has gained many new customers. The mailing list became larger as you added names to it. Now the list is so large that you want to divide it into *sublists*. Make two selection specification documents. One might select in-state customers, while the other selected out-of-state customers. Now, using List Processing twice, you could make two sublists. Together, they would contain all the records from the original large list.

Printing Angle Brackets. Whenever DECmate finds the left angle bracket < in a form document, it interprets the < and the characters that follow it either as a field name or one of the commands presented in this chapter.

To put a < character in your output document, you must put two << characters in the form document. When DECmate finds two left angle brackets together during List Processing, it does not look for a field name or a command after the pair of left angle brackets. Instead, it produces one left angle bracket, <.

You can put the right angle bracket > in the output document by typing it in the form document. The right angle bracket has no special meaning unless it follows a left angle bracket <. The left angle bracket begins a field name or command.

Suppose you have this record in a list document:

```
<name>Arthur Mitchell
<position>Sales Manager, Eastern Region
<location>Eastern Region Sales Office
<mail address>Boston RV3
<telephone>838-4853
<>
```

The following form document produces a new list document. In the new list document, the old list document's fields have shorter names.

```
<<na><name>
<<loc><location>
<<phone><telephone>
<<>
```

For each record, this form document makes DECmate produce the characters <*na*>. DECmate then retrieves the value of the record's <name> field. Then DECmate produces the characters <*loc*> followed by the value of the field <location>, and so on. The last line in the form document outputs a diamond. The result is:

```
<na>Arthur Mitchell
<loc>Eastern Region Sales Office
<phone>838-4853
<>
```

Summary of Commands.

<!S>	Start the repetitive area here, not at the top of the form document. (Preceding text is a leader.)
<!E>	End the repetitive area here, not at the bottom of the form document. (Following text is a trailer.)
<!R>	Copy the record from the list document into the output document.

<>	Advance to the next record in the list document.
<<	Produce a single left angle bracket < character at this point.

The Selection Specification Document

The first part of this section lists different types of selection specification documents you can create. Use these variations for processing lists with more precision. The second part deals with testing a selection specification.

Acceptable Variations for Specifications

Using *Or*. You can use the word *or* to test the same field for several different values.

```
if <state>=New Hampshire
  or=N.H.
  or=NH
then process record
```

This example selects records referring to New Hampshire, accepting three values for the field <state>. Note that the second and third lines are indented for easier reading.

You can include or omit spaces after the word *or*.

```
if <state>=New Hampshire
  or=N.H.
  or =NH
then process record
```

Remember that each test in a selection specification must be on a separate line.

Using *And*. You can combine several tests with the word *and* so you can test more than one field at a time. DECmate selects a record only if it satisfies *all* the tests you give.

```
if <city>=Hudson
and <state>=New Hampshire
  or=N.H.
  or=NH
then process record
```

This example selects records referring to residents of Hudson, New Hampshire. It omits residents of any other state. Three acceptable values are given for <state>. Note that this example contains both *and* and *or* specifications.

Rejecting Some Records. You can reject some of the records, even if they have passed all the tests up to now by starting a line with the words *but not if.*

```
if <city>=Hudson
and <state>=New Hampshire
  or=N.H.
  or=NH
but not if <credit>=bad
then process record
```

Adding this conditional leaves out certain records even though they pertain to residents of Hudson, New Hampshire.

Using More than One Sentence. Selection specifications can have more than one *sentence*. A sentence is a list of acceptable values in a specification that begins with *if* and ends with *then process record.* Link these sentences together with the word *or.*

Here is example of a selection specification with several sentences. This example has an extra line between sentences to show the proper grouping of ideas.

```
if <state>=Maine
then process record                 first sentence

or if <state>=Massachusetts
and <county>=Middlesex              second sentence
then process record

or if <state>=New Hampshire
and <county>=Hillsborough
  or =Rockingham                    third sentence
  or =Strafford
then process record
```

DECmate processes records that satisfy either test. This selection specification selects records that pertain to Maine and counties in two other states.

Broader Specifications

Up to now, you have seen tests that try to match values character-for-character. You can test the value of a field other than a character-for-character exact match. You can match:

- Empty or missing fields
- Fields that match a partial value by using *wildcards*
- Number values

The following sections discuss these tests.

Testing for Empty or Missing Fields. You can write a selection specification to select records in which a certain field is empty.

If the phrase after the equal sign has no text (only a hard return), then DECmate checks to see if the specified field value has no text — that is, to see if it is empty.

```
if <zip>=
then process record
```

This selection specification selects records with an *empty* <zip> field. DECmate leaves that field blank in the output document. In this way, you can keep track of empty fields and try to update your list document.

In the example just discussed, records with a *missing* <zip> field are not selected. That is, if DECmate does not find a <zip> field name in that record, then it does not process that record. Instead, it goes on to the next record.

Suppose your records have a field <hourly> that contains YES or NO value. And suppose you have one selection specification that selects the YES records, and another that selects the NO records. You could also write a third specification that selects records with the <hourly> field empty. A record where the <hourly> field is missing is not selected by any of these specifications.

Using the methods discussed so far, you cannot select records with missing fields. To select records with missing fields, you must use a selection specificaton that has a *wildcard.*

Using Wildcards. In the selection specifications previously discussed, a phrase must match character for character. However, there are two special characters that can match characters different than those in the field value. Wildcards let you write more flexible tests. The two types of wildcards DECmate recognizes are questions marks <?> and asterisks <*>.

- **For Any Single Character**

  To look for *any character* in the field value, type <?> in the phrase. For example:

  ```
  if <credit>=<?>
  then process record
  ```

  This specification tells DECmate to select records whose <credit> fields contain *exactly one character*. It does not matter what character. DECmate ignores records whose <credit> fields are empty, missing, or have more than one character.

  You can combine the <?> wildcard with text. When you do, DECmate looks for specific characters where you used text, and any character where you used <?>. For example:

  ```
  if <model#>=R<?>-15<?>
  then process record
  ```

  DECmate looks in the field <model#> for a capital R, any character, a hyphen, a one, a five, and then any character, in that order. It selects only those records that match this form. RA–156 and R3–15B are two valid model numbers.

- **For Any Number of Characters**

  To look for *a particular number of any characters*, type one question mark for each character. For example:

  ```
  if <town>=<?????>boro
  then process record
  ```

  The wildcard in this example makes DECmate look for any five characters at the start of the field value. Fields called <town> with values Northboro and Southboro match this test. Westboro (only four characters) does not.

To look for *any number of any characters, including none*, use the asterisk wildcard <*>.

```
if <town>=<*>boro
then process record
```

The values Northboro, Southboro, Eastboro, and Westboro all match. Any field value matches as long as the last four characters are *boro*. A field containing only the four characters *boro* would match. Missing and empty fields do not match.

NOTE: You cannot use more than two <> wildcards on the same line.*

The following specification selects any record where the <name> field value contains *Jones*, regardless of what characters precede or follow it:

```
if <name>=<*>Jones<*>
then process record
```

Records with <name> fields containing J.P. Jones, Sr., John Paul Jones, Jr., Mary Jones, or just plain Jones would all match this test.

```
if <zip>=<*>
then process record
```

This selects any record where there is a <zip> field. This includes empty <zip> fields. But, records with a missing <zip> field are not processed.

Here is an example of selecting a record with a missing field:

```
if <town>=Northboro
but not if <zip>=<*>
then process record
```

This selection specification is the opposite of the previous one. It selects only those records for which the <zip> field is missing. DECmate cannot read a selection specification that begins with *but not if*. So you must have a selection phrase before *but not if* that relates to all the records you want to test.

Using Number Values. There are three ways to use numbers in a selection specification:

- You can test numbers numerically. If the field name is numeric, such as <:cost>, then the selection specification tests for the *numeric value* of the field value.
- You can test numbers character for character. If the field name is not numeric, such as <cost>, then the selection specification tests the field value *character for character.*
- You can test numbers by digits only. If the field name is not numeric, but the field value is *enclosed in <angle brackets>*, such as <cost>=<$100>, then the selection specification tests only the *digits* in the value. All other characters are ignored.

Always use a numeric field name for fields that have a numeric field value. A numeric field name is any field name that begins with a colon (:), such as <:cost>.

A numeric field value can contain a maximum of 13 digits, with a maximum of 6 digits to the right of the decimal point. If you need to include more than 13 digits in a field value, then read the section on Testing Character for Character, later in this chapter.

- **Testing Numerically**

  When the selection specification tests a numeric field (one with a colon), it uses the following guidelines:

  - DECmate ignores leading zeros, leading and trailing asterisks, the plus sign, and the dollar sign. Thus, 10000, 010000, *10000, +10000, and $10000 are all equal.
  - DECmate recognizes parentheses or a leading or trailing minus sign as giving a number a negative value. Thus, (10000), –10000 and 10000– are equal values. But these numbers have a different value than 10000.
  - DECmate considers decimal points when a numeric field is tested. Thus 10000 and 10000.00 are equal. But $10,000, 1000.0 and 100.00 are not equal.

  - Comma separators to the left of the decimal point position do not affect the value of the number. Thus 10000 and 10,000 are equal values. Commas to the right of the decimal point are not valid. Thus, DECmate does not recognize 10000.00,1 as a numeric value.
  - Alphabetic and other nonnumeric characters are not acceptable values in a numeric field. DECmate does not recognize either 10A000 or @10000 as numbers.
  - Certain characters have a different value when part of a numeric field. These characters are $, *, +, –, (, and). For a list of acceptable characters in a numeric field, see the section on list documents.

  List Processing Math only allows numeric fields to do List Processing Math. For more information on the Math feature, see *Using Math* (AA–N186A–TA).

- **Testing Character for Character**

  A selection specification tests a number value differently, depending on whether the field name is numeric or not. If a field name is nonnumeric (no colon), the selection specification tests the field value character for character.

  Suppose you wanted to select records referring to projects that cost $10,000. If you write:

  ```
  if <cost>=$10,000
  then process record
  ```

  DECmate looks for a match to *$10,000* character for character. It does not select records where you left out the dollar sign or the comma.

- **Testing Digits Only**

  Another way to test the value of a field containing numbers is to enclose the number you are looking for in <angle brackets>. This makes DECmate consider only the digits in the field and ignore the dollar signs, commas, decimal points, minus signs, and so on.

Use this method to test long numbers, up to 30 digits. (Remember, a numeric field can only have a numeric value of 13 digits.)

```
if <cost>=<10000>
then process record
```

In this selection specification, the field values $10,000, $10000, 10000, 100.00, and so on, all match. The value of the numeric part of all these values is 10000.

When you use this method, DECmate also ignores the nonnumeric characters inside the angle brackets in the selection specification. So you could write:

```
if <cost>=<$10,000>
then process record
```

Again, the field values $10,000, $10000, 10000, and so on, all match.

NOTE: *The above selection specification would also select records where <cost> was $100.00 or –10,000, since DECmate ignores decimal points and minus signs and evaluates the field value as a number. Whenever possible, use numeric field names to eliminate this problem.*

You can solve the problem of selecting records with the same digits, but different values, such as –10,000 and $100.00, by using numeric field names. For example:

```
if <:cost>=<10000>
then process record
```

NOTE: *You cannot use wildcards <*> and <?> on a line where you are using the <angle bracket> method to test for a number.*

Testing Numeric Ranges

You can also test for a range of numbers using selection specifications like these:

```
if <field name>=<number> or more
```

```
if <field name>=<number> or less
```

```
if <field name>=<number> through <number>
```

```
if <field name>=<number> thru <number>
```

These forms let you select records where the value of a field containing numbers is within a certain range. The last two forms have the same effect.

NOTE: You cannot use wildcards <> and <?> on a line where you are using the <angle bracket> method to test for a number or numeric range.*

Numeric Fields. If you use numeric field names, you can test for field values within a numeric range. For example, you can select records for employees whose salaries are in a certain range:

```
if <:salary>=<10000> thru <14999>
then process record
```

You can select customers who have owed $50 or more for at least 3 months:

```
if <:balance>=<50.00> or more
and <:overdue>=<3> or more
then process record
```

Nonnumeric Fields. However, if you use a nonnumeric field name, remember that the number within <angle brackets> is treated differently. The field value of 50.00 in the above example would have a numeric value of 5000, because the decimal point is ignored. If you use nonnumeric field names, use the following selection specification:

```
if <balance>=<50> or more
and <overdue>=<3> or more
then process record
```

Using Dates as Numbers. If you want to test for a field value that is a date, DECmate matches the date character for character. For example:

```
if <date>=1/23/81
then process record
```

This specification selects records with a <date> field with a value of 1/23/81.

To match for a date as a string of numbers, use the <angle bracket> method of testing for a number:

```
if <date>=<1/23/81>
then process record
```

This selection specification selects records with values such as 1/23/81 and 1–23–81 in the date field. However, it also selects the date 12/3/81.

To resolve this confusion, include zeros (0) where appropriate to make months and days two (2) digits. Then 1/23/81 becomes 01/23/81, and 12/3/81 becomes 12/03/81.

Testing for a Range of Dates. If you want to test for a range of dates, do not put them in numeric form . For example, to process all records with a <date> field value between July 14, 1941 and June 21, 1978, write July 14, 1941 as 07/14/41 and June 21, 1978 as 06/21/78.

Also, you cannot use the selection specification:

```
if <date>=<07/14/41> through <06/21/78>
then process record
```

The field <07/14/41> has a numeric value of 071441. And <06/21/78> has a numeric value of 062178, which is smaller than 071441. So the range *071441 through 062178* is not valid.

To resolve this problem, reverse the dates to type the largest value (the year) first. The format is:

year/month/day

Use numeric field names. Include zeros (0) where appropriate to make months and days two (2) digits. So July 14, 1941 becomes <410714>. June 21, 1978 becomes <780621>. The following selection specification then works properly:

```
if <:date>=<410714> through <780621>
then process record
```

Remember, you cannot include the slash (/) character in a numeric field value.

You can also resolve the problem by using a nonnumeric field name:

```
if <date>=<41/07/14> through <78/06/21>
then process record
```

6

Summary of List Processing

This chapter outlines and summarizes how to do List Processing. It is a review for experienced users. If you need practice with List Processing, do the exercises in Chapters 3 and 4.

List Processing must be active on your system. For information on activating the feature, see Chapter 2.

Type the List Document

- Use the C option from the Main Menu to create a list document.
- Type any comments inside a control command.
- Decide what fields to include in your list document. Use separate fields in the list document for any piece of information you may want to have by itself in a letter or table.
- Choose field names. Once you have chosen the names, you must spell them the same way in every record.

- Type the <field name>, the value of the field, and then press RETURN. When you have typed all the fields for that record, type the diamond <> to end the record. Then press RETURN *twice.*
- Continue creating records.

  When you are creating a new application, file the document after typing three or four records. Create a sample form document and selection specification, as outlined below. Then run List Processing. Once you have run List Processing and are satisfied with the output, you can add more records to the list document.

Type the Form Document

- Create a form document using the C option from the Main Menu. Start by typing what you want the first copy to look like. Include the <field names> where appropriate. Make sure the text, rulers, and highlighting are the way you want them.
- Remember to put a NEW PAGE mark at the end of the form document if you are creating a form document, such as a letter, that uses one sheet of paper for each record.
- File the form document when you are finished.

  If you are inexperienced at List Processing, make a sample form document to prove that List Processing is working as you want it to.

Type the Selection Specification

- Create a selection specification. End each specification with *process record.*
- File the selection specification document when you are finished.

Run List Processing

When all three documents are ready, you can run List Processing.

1. From the Main Menu, type LP and then press RETURN.
2. Type P and press RETURN to send output to the printer. Or type D and press RETURN to send output to a document.

   If you are testing your sample document, choose the P option to get printed results to examine.
3. Type the name or number of your list document. Press RETURN.
4. Type the name or number of your selection specification. Press RETURN.
5. Type the name or number of your form document. Press RETURN.
6. If you send the output to a printer, examine the Print Menu settings. Change the settings as necessary, type YES or OK, and then press RETURN.

   If you send output to a document, name the document to receive the results of List Processing. If the document already exists, decide how it is to be modified, and press RETURN.
7. Specify any FR and TO settings necessary. Type GO and then press RETURN to begin.

The output from List Processing begins scrolling on the screen. If you choose the P option, the output prints. When List Processing finishes, press Gold MENU to recall the Main Menu.

Glossary

Italicized words are also entries in the glossary.

abbreviation document

A document where frequently used words and phrases can be stored. Each entry is identified by a two-character abbreviation, used to invoke the stored text. Compare *library document*. See the User's Guide.

activate

To introduce an *optional feature*, such as List Processing, onto the *system diskette*.

application

A specific task that can be performed using word processing *basic software* and, at times, the *optional features*. For example, a mailing list application might use *List Processing*.

ASF

See *automatic sheet feeder*.

automatic sheet feeder

(ASF) An accessory for the letter quality printer that feeds individual sheets of paper to the printer.

basic software

The instructions on the system diskette that allow DECmate to perform word processing.

comments

Optional text included at the beginning of the *list document* that is not part of any *record.* Comments usually explain the *field names* and other relevant information.

data base

Stored sets of information that are used to generate reports, mailing lists, and so on. The *list document* is a data base.

diamond

The left and right angle brackets <>, with no text between them, used to mark the end of a record in a list document.

empty field

A *field name* without a *field value.*

feature

Software that performs a specialized task. Features such as global search-and-replace are part of DECmate's *basic software.* DECmate offers *optional features* such as List Processing and Communications.

feature diskette

A diskette that *activates* an *optional feature.*

field

The basic unit of information in a *record.* For example:

```
<zip>03054
```

In this example, the *field name,* enclosed in angle brackets, is zip; the *field value* is 03054.

field name

The text enclosed in <angle brackets> in a *list document.*

field value

The text following the right angle bracket > that ends a *field name* up to the next left angle bracket <.

form document

In *List Processing*, the document that contains text to be printed repeatedly. It also shows where to merge variable information from the *list document.*

invisible character

Can be either 1) a character that is not visible during normal editing mode, such as a centering mark, but can be viewed in view mode as a symbol or abbreviation, or 2) a character visible on the screen, such as a PAGE MARKER, that is not visible in the printed document.

invisible hyphen

An invisible character that tells the system where to hyphenate a word if necessary.

leader

The text printed at the top of a *form document*, before the <!S> command that begins the *repetitive area.*

library document

A document used for storing frequently needed text. Each entry is identified by a *short name,* used to invoke the stored text. Compare *abbreviation document.*

list document

A document containing *records* of information. In *List Processing,* records from the list document are merged with a *form document.*

List Processing

The *optional feature* that produces many copies of a *form document* with certain information changing from one copy to the next.

List Processing Menu

The menu that displays when the LP option is selected from the Main Menu and the List Processing feature is active.

Math

The *optional feature* that allows DECmate to perform mathematical calculations while you edit or run *List Processing.*

missing field

A field that is not included in a specific record in a list document.

numeric field

A field with a *field name* that begins with a colon (:) and has a numeric value as the *field value.*

optional feature

A *feature* purchased separately from the basic word processing software. DECmate offers *List Processing, Sort, Math,* and Communications as optional features.

output document

The document generated when you run List Processing.

overwrite

To replace text in a document with new text.

record

A group of related *fields* in a *list document.* For example:

```
<name>John Doe
<addr>P.O. Box 1
<city>Merrimack
<state>NH
<zip>03054
<>
```

In this example, the five fields contain information on a particular person. The *diamond* <> marks the end of the record.

repetitive area

The name given to all text and commands between the start <!S> command and the end <!E> command. Usually, records are processed sequentially in the repetitive area. The *leader* and *trailer* are printed only once.

result document

See *output document.*

selection specification

Instructions defining which records from the *list document* will be merged with the *form document.*

sentence

In List Processing, the list of acceptable values in the *selection specification* that begins with **if** and ends with **process record.**

short name

A word enclosed in double angle brackets, such as <<type>>, that specifies a unique entry in the *library document.*

software

A set of instructions for the computer. For DECmate, software is stored on the system diskette.

Sort

The *optional feature* that examines a *list document* and produces another list document with the *records* rearranged in ascending or descending order.

specification document

One of the three List Processing documents. Contains the *selection specification* that determines which *fields* and *records* from the *list document* to merge with the *form document.*

sublist

A list containing selected *records* from a *list document.*

trailer

The text printed at the end of a *form document*, after the <!E> command that ends the *repetitive area.*

value

See *field value.*

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